

IN THE CLAIMS:

1. A method of treating contaminants in an in situ environment comprising:  
adding a stabilized peroxide in an effective amount of up to 35% by weight in water and  
5 ozone in an effective amount of 2 to 15% by volume in air to the in situ environment to  
oxidize at least one of the contaminants without acidification of the environment.

2. The method of claim 1 wherein the source of the peroxide is selected  
from the group consisting hydrogen peroxide, sodium peroxide and calcium peroxide.

10 3. The method of claim 2 wherein the source of the peroxide is hydrogen  
peroxide.

4. The method of claim 1 comprising stabilizing the source of the peroxide  
15 with a stabilizer selected from the group consisting of acids, salts and mixtures thereof.

5. The method of claim 4 wherein the stabilizer is selected from the group  
consisting of phosphoric acid, monopotassium phosphate and combinations thereof.

20 6. The method of claim 1 comprising first adding the source of the peroxide  
to the in situ environment and then adding the ozone to the in situ environment.

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7. The method of claim 1 wherein at least a portion of the reactive species comprises hydroxyl radicals.

8. The method of claim 1 further comprising monitoring the concentration of the reactive species in the in situ environment.

9. The method of claim 1 wherein the in situ environment is selected from the group consisting of soil, groundwater and fractured bedrock.

10. The method of claim 1 adding the source of the peroxide and ozone at an elevated pressure.

11. The method of claim 10 wherein the elevated pressure is from about 40 to 100 psi.

12. The method of claim 10 wherein the in situ environment is fractured bedrock.

13. The method of claim 1 wherein the concentration of the stabilized peroxide is from about 3 to 25% by weight in water.

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14. The method of claim 1 wherein the weight ratio of peroxide to ozone is in the range of from about 0.4 to 1.2 w/w.

15. The method of claim 1 wherein the amount of ozone in air is from about  
5 3 to 12% by volume.

16. The method of claim 1 comprising injecting the ozone through a plurality of injection points in the in situ environment.